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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,857	06/21/2001	Phillip S. Wilson	P 281189	6439
909	7590	01/29/2004	EXAMINER	
PILLSBURY WINTHROP, LLP			VO, HAI	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	

1771

DATE MAILED: 01/29/2004


Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,857

Applicant(s)

WILSON, PHILLIP S. 

Examiner

Hai Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al (US 5,717,000) in view of Christiani et al (US 5,747,560) as evidenced by Clayton Chemistry. Karande discloses a polymer foam comprising a styrenic polymer, organophilic multi-layered particles in an amount of 3 wt% and one blowing agent in an amount of about 3 wt% (abstract, table III). Karande does not specifically disclose the platelet concentration in % by volume. However, Karande discloses a polymer foam exhibiting improved impact strength (column 5, lines 52-55), which is the same improvement disclosed in the presently claimed product (Applicant's specification, page 4, lines 15-17). Applicant states that the amount of reinforcing particles is greater than 15% by volume, the viscosity of the composition becomes too high and thus difficult to mold. The amount of reinforcing particles is less than 2% by volume, the composition would not achieve the desired increase in strength (Applicant's specification, page 8, lines 12-20). Since the Karande's foam product exhibits the same improved impact strength as the presently claimed article, and there is no suggestion of the difficulty in processing of the foam in Karande, it is the examiner's position that the reinforcing particles in Karande must be used in a concentration (% by volume) within the claimed range to achieve that desired

strength and expectation of successfully practicing the invention of Karande. In addition, the specific gravity of bentonite (sodium montmorillonite) is 2.6, substantially greater than the specific gravity of most resin material especially in foamed foam. Thus, given the low wt% recited in conjunction with the small colloidal particle size, the volume% would be low as well. Further evidencing the range claimed instantly disclosed in the prior art but in alternative terms. In addition, the examiner respectfully wishes to also point out that Karande is using a montmorillonite clay commercially sold as CLAYTON HYTM and the same exfoliation process to form platelet particles as Applicant (Karande, column 2, lines 11-65 vs. Applicant's specification, page 6, lines 13-14). It is well-known in the art, a montmorillonite clay has a uniform size of 0.92 nm thickness (The Clayton Chemistry, page 2) within the claimed range 0.7 to 1.2 nm. Karande discloses the polymer foam comprising single layers such as silicate layers about 1 to 100 nm thick dispersed in a continuous polymer matrix, encompassing the values as recited by the claims. Karande does not specifically disclose that the exfoliation is complete or not complete. Karande is silent as to more than about 50% of the silicates less than about 20 layers thick and more than about 99% of the silicates less than about 30 layers thick. Christiani teaches a composite material comprising a thermoplastic polymer and layers of a silicate wherein the silicate particles dispersed in matrix polymers are less than 10 layers thick and they are not completely exfoliated to improve tensile strength of the composite material (column 21, lines 58-65). Likewise, Christiani teaches 100% of the silicates less than 10 layers thick, which

reads on the claimed subject matter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particles completely exfoliated motivated by the desire to improve tensile strength of the composite material.

Response to Arguments

3. The specification objection and the art rejections have been overcome by the present amendment.
4. The art rejections over Karande in view of Okada as evidenced by Clayton Chemistry have been overcome by the present arguments and amendment.
5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from

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the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485.

The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0994.

HV

Ula C. Ruddock
Ula C. Ruddock
Primary Examiner
Tech Center 1700